Amendments to the Claims:

1. (Currently Amended) A method of downhole data communication in a well in which there is a flow path for a flow of product from the formation towards the surface, the data communication taking place between two locations in the flow path, at least one of which is downhole in the well, and the method comprising the steps of:

controlling a flow rate of the product at a first of the two locations in dependence on data to be transmitted;

~~measuring~~detecting, at the second of the two locations, th~~e flow rate of the product to detect variations in flow rate of the product at the second location caused by~~ effect of said controlling of the flow rate of the product at the first location; and

using the results of the ~~measuring~~detecting step to extract the data transmitted, wherein the step of controlling the flow rate of the product at the first of the two locations comprises modulating the flow rate using a carrier frequency that is below 0.1 Hz.

2. (Original) A method according to claim 1 comprising the step of keeping the nominal flow rate at the first location at a state for at least a minimum period chosen to allow this change in state to propagate to the second location.

3. (Previously Presented) A method according to claim 1 comprising the step of altering the flow rate of the product at the first location by at least +/- 20% about an average flow rate to encode data to be transmitted.

4. (Cancelled)

5. (Previously Presented) A method according to claim 1 comprising the further steps of:

controlling a flow rate of the product at the second location in dependence on data to be transmitted;

detecting, at the first location, the effect of said controlling of the flow rate of the product at the second location; and

using the results of the detecting step at the first location to extract the data transmitted.

6. (Previously Presented) A method according to claim 1 in which the flow is modulated using a scheme arranged such that the average flow rate is that required for production.

7. (Previously Presented) A method according to claim 1 in which variations in flow rate created at the first location are applied in the form of tones.

8. (Previously Presented) A method according to claim 1 comprising the step of communicating between a plurality of branches in a multi-lateral well and the well head.

9. (Previously Presented) A method according to claim 1 comprising the step of actively smoothing undesired fluctuations in the flow rate.

10. (Previously Presented) A method according to claim 9 comprising the steps of using a valve to controllably restrict the flow rate at the first location, sensing a pressure in the region of the valve and varying the flow restriction provided by the valve in dependence on the pressure sensed.

11. (Original) A method according to claim 10 comprising the step of using a plurality of predetermined levels of flow rate in a signalling technique and varying the flow restriction provided by the valve in an aim to keep the flow rate at a selected one of the plurality of predetermined levels at any one time in accordance with the signals to be sent.

12. (Currently Amended) Downhole data communication apparatus for use in a well in which there is a flow path for a flow of product from the formation towards the surface and where the data communication takes place between two locations in the flow path, at least one of which is downhole in the well, the apparatus comprising:

a flow rate controller for controlling a flow rate of the product at a first of the two locations in dependence on data to be transmitted;

a ~~flow rate~~ detector disposed at the second of the two locations, for detecting the effect of controlling of the flow rate of the product at the first location; and

an analyser to extract transmitted data using the output of the detector, wherein the flow rate controller is arranged to modulate the flow rate using a carrier frequency that is below 0.1 Hz.

13. (Cancelled)

14. (Currently Amended) Apparatus according to claim [[12]] 36, in which the flow rate detector comprises a flow rate meter which comprises a chamber, an elongate orifice having one end in fluid communication with the chamber and another end exposable to the ingress of fluid from a fluid flow, the flow rate of which flow is to be measured, and a pressure sensor for sensing the pressure in the chamber.

15. (Previously Presented) Apparatus according to claim 14 in which the pressure sensor is arranged for sensing the pressure across the orifice.

16. (Previously Presented) Apparatus according to claim 14 in which the pressure sensor is a differential pressure sensor arranged to sense the differential pressure between fluid in the chamber and fluid in the fluid flow in the region of said other end of the orifice.

17. (Cancelled)

18. (Currently Amended) Apparatus according to claim 12, further comprising:

a second location flow rate controller for controlling a flow rate of the product at the second location in dependence on data to be transmitted from the second location;

a first location ~~flow rate~~ detector for detecting, at the first location, the effect of controlling of the flow rate of the product at the second location; and

an analyser arranged to extract data transmitted from the second location using the output of the first location ~~flow rate~~ detector.

19. (Previously Presented) Apparatus according to claim 12 which is arranged to modulate flow rate using a scheme arranged such that the average flow rate is that required for production.

20. (Previously Presented) Apparatus according to claim 12 in which the flow rate controller is arranged for applying variations in flow rate in the form of tones.

21. (Previously Presented) Apparatus according to claim 12 arranged such as to allow communication between a plurality of branches in a multi-lateral well and the well head.

22. (Previously Presented) Apparatus according to claim 12 in which the flow rate controller is arranged to actively smooth undesired fluctuations in flow rate.

23. (Previously Presented) Apparatus according to claim 22 in which the flow rate controller comprises a valve for controllably restricting the product flow rate, comprises a sensor for sensing pressure in the region of the valve, and is arranged to vary the flow restriction provided by the valve in dependence on the pressure sensed.

24. (Previously Presented) Apparatus according to claim 12, further comprising at least one of:

a pump at the first location to aid in control of the flow rate at the first location, and
a pump provided at the second location.

25. (Original) A method of downhole data communication in a well in which there is a flow of product from the formation towards the surface comprising the step of transmitting data by modulating the flow rate of the product to encode the data.

26. (Cancelled)

27. (Previously Presented) A flow rate meter comprising a chamber, an elongate orifice having one end in fluid communication with the chamber and another end exposable to the

ingress of fluid from a fluid flow, the flow rate of which flow is to be measured, and a pressure sensor for sensing the pressure in the chamber.

28. (Previously Presented) A flow rate meter according to claim 27 in which the pressure sensor is arranged for sensing the pressure across the orifice.

29. (Previously Presented) A flow rate meter according to claim 27 in which the pressure sensor is a differential pressure sensor arranged to sense the differential pressure between fluid in the chamber and fluid in the fluid flow in the region of said other end of the orifice.

30-31. (Cancelled)

32. (Original) A transceiver module for providing both transmit and receive functions in a producing well, the module being arranged for location at least partially in tubing carrying product and comprising a controllable valve for controlling the flow rate of product through the tubing, a flow rate meter for measuring the flow rate of product through the tubing, and a control unit for controlling the valve and hence the flow rate in dependence on data to be transmitted during transmission and for analysing the output of the flow rate meter to extract data carried by variations of the flow rate during reception.

33. (Previously Presented) A method of downhole data communication in a well in which there is a flow path for a flow of product from the formation towards the surface, the data communication taking place between two locations in the flow path, at least one of which is downhole in the well, and the method comprising the steps of:

controlling a flow rate of the product at a first of the two locations in dependence on data to be transmitted;

measuring, at the second of the two locations, the flow rate of the product to detect variations in flow rate of the product at the second location caused by said controlling of the flow rate of the product at the first location; and

using the results of the measuring step to extract the data transmitted, the method comprising the further steps of altering the flow rate of the product at the first location by at least

+/- 20% about an average flow rate to encode data to be transmitted and controlling the flow rate of the product at the first location in such a way as to apply tones to the flow having a frequency in the order of 0.1Hz or below.

34. (Previously Presented) Downhole data communication apparatus for use in a well in which there is a flow path for a flow of product from the formation towards the surface and where the data communication takes place between two locations in the flow path, at least one of which is downhole in the well, the apparatus comprising:

a flow rate controller for controlling a flow rate of the product at a first of the two locations in dependence on data to be transmitted;

a flow rate detector disposed at the second of the two locations, for detecting the effect of controlling of the flow rate of the product at the first location; and

an analyser to extract transmitted data using the output of the detector, wherein the flow rate controller is arranged for altering the flow rate of the product at the first location by at least +/- 20% about an average flow rate to encode data to be transmitted and moreover is arranged for controlling the flow rate of the product at the first location in such a way as to apply tones to the flow having a frequency in the order of 0.1Hz or below.

35. (New) A method according to claim 1, in which the detecting step comprises the step of measuring, at the second of the two locations, the flow rate of the product to detect variations in flow rate of the product at the second location caused by said controlling of the flow rate of the product at the first location.

36. (New) Apparatus according to claim 12, in which the detector comprises a flow rate detector.

37. (New) A method of downhole data communication in a well in which there is a flow path for a flow of product from the formation towards the surface, the data communication taking place between two locations in the flow path, at least one of which is downhole in the well, and the method comprising the steps of:

controlling a flow rate of the product at a first of the two locations in dependence on data to be transmitted;

measuring, at the second of the two locations, the flow rate of the product to detect variations in flow rate of the product at the second location caused by said controlling of the flow rate of the product at the first location; and

using the results of the measuring step to extract the data transmitted.

38. (New) Downhole data communication apparatus for use in a well in which there is a flow path for a flow of product from the formation towards the surface and where the data communication takes place between two locations in the flow path, at least one of which is downhole in the well, the apparatus comprising:

a flow rate controller for controlling a flow rate of the product at a first of the two locations in dependence on data to be transmitted;

a flow rate detector disposed at the second of the two locations, for detecting_the effect of controlling of the flow rate of the product at the first location; and

an analyser to extract transmitted data using the output of the detector.